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DERWENT-ACC-NO: 2000-166871
DERWENT-WEEK: 200016
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TITLE: Thin-film transistor circuit for active matrix type semiconductor display device - has predetermined number of analog buffer circuits consisting of differential circuits and current mirror circuits, which are connected in parallel

PATENT-ASSIGNEE: SEMICONDUCTOR ENERGY LAB[SEME]

PRIORITY-DATA: 1998JP-0118092 (April 28, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
JP 2000022462	January 21, 2000	N/A
019	H03F 003/68	

A

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
JP2000022462A	N/A	1999JP-0048578
February 25, 1999		

INT-CL (IPC): G02F001/136; H01L021/336 ; H01L027/08 ;
H01L029/786 ;
H03F003/45 ; H03F003/68

ABSTRACTED-PUB-NO: JP2000022462A

BASIC-ABSTRACT: NOVELTY - Predetermined number of analog buffer circuits

(A1-An) consisting of differential circuits (B1-Bn) and current mirror circuits

(C1-C3), are connected in parallel. DETAILED DESCRIPTION - An INDEPENDENT

CLAIM is also included for an active matrix type semiconductor display device.

USE - For active matrix type semiconductor display device.

ADVANTAGE - Characteristic variation of analog buffer causing image irregularity of semiconductor display device, can be suppressed.
High-resolution semiconductor display device can be offered. DESCRIPTION OF
DRAWING(S) - The figure shows the circuit component of the analog buffer circuit. (A1-An) Analog buffer circuits; (B1-Bn) Differential circuits;
(C1-C3) Current mirror circuits.

CHOSEN-DRAWING: Dwg.1/14

TITLE-TERMS:

THIN FILM TRANSISTOR CIRCUIT ACTIVE MATRIX TYPE
SEMICONDUCTOR DISPLAY DEVICE
PREDETERMINED NUMBER ANALOGUE BUFFER CIRCUIT CONSIST
DIFFERENTIAL CIRCUIT
CURRENT MIRROR CIRCUIT CONNECT PARALLEL

DERWENT-CLASS: P81 U12 U14 U24

EPI-CODES: U12-B03A; U14-K01A2B; U14-K01A3; U24-G02A1;
U24-G02F2;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N2000-125365

L Number	Hits	Search Text	DB	Time stamp
1	1979	analog same buffer same parallel	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 13:47
2	25849	analog same buffer same parallel samd (active adj matrix)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 13:47
3	12	analog same buffer same parallel same (active adj matrix)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 13:48

	U	I	Document ID	Issue Date	Pages	Title	Current OR	Current XRef	R
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	US 20010045931 A1	20011129	19	Drive circuit of active matrix type display device	345/92		
2	<input type="checkbox"/>	<input type="checkbox"/>	US 20010024185 A1	20010927	17	Semiconductor display device	345/92		
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	US 20010011970 A1	20010809	17	DRIVE CIRCUIT OF ACTIVE MATRIX TYPE DISPLAY DEVICE	345/30		
4	<input type="checkbox"/>	<input type="checkbox"/>	US 6246387 B1	20010612	16	Semiconductor display device	345/92	345/205; 345/206;	
5	<input type="checkbox"/>	<input type="checkbox"/>	US 6232946 B1	20010515	29	Active matrix drive circuits	345/98	345/100	
6	<input type="checkbox"/>	<input type="checkbox"/>	JP 11214700 A	19990806	12	SEMICONDUCTOR DISPLAY DEVICE			
7	<input type="checkbox"/>	<input type="checkbox"/>	JP 04074638 A	19920312	7	LIQUID CRYSTAL DRIVING DEVICE		345/92	
8	<input type="checkbox"/>	<input type="checkbox"/>	JP 2000194276 A	20000714	16	Active matrix type display device production procedure			
9	<input type="checkbox"/>	<input type="checkbox"/>	JP 2000155304 A	20000606	16	Active matrix type display device has each pair of			
10	<input type="checkbox"/>	<input type="checkbox"/>	JP 2000022462 A	20000121	19	Thin-film transistor circuit for active matrix type			
11	<input type="checkbox"/>	<input type="checkbox"/>	JP 10153800 A	19980609	16	Active matrix display device - has source drive circuit			
12	<input type="checkbox"/>	<input type="checkbox"/>	JP 08062637 A	20011122	19	Drive circuit for active matrix type display device -			

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INT-CL: [07], G09G003/36

US-CL-PUBLISHED: 345/92

US-CL-CURRENT: 345/92

REFERENCE-FIGURES: 1

ABSTRACT:

An active matrix semiconductor device is provided which is free of unevenness in image. The analog switch and buffer in a drive circuit are structured by a plurality of parallel -connected analog switches and buffers each formed by a TFT with a small channel width. The carrier moving direction of these TFTs are oblique relative to a scanning direction of a linear laser used for laser crystallization. By doing so, the analog switch and the buffer are decreased in characteristic variation with deterioration suppressed. Thus an active matrix semiconductor device is realized which is free of unevenness in image.

BRIEF SUMMARY:

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to semiconductor display devices with thin film transistors. More particularly, the

United States

Patent Application Publication

Pub. No.: US 2001/0024185 A1

Pub. Date: Sep. 27, 2001

SEMICONDUCTOR DISPLAY DEVICE

Invention: Storage Transistor Arranged TFT

App. No.: 08/997,383

Date: May 2, 2001

Related U.S. Application Data

Division of application No. 08/228,443, filed on Nov. 20, 1992, and No. 08/228,447.

Foreign Application Priority Data

Jan. 21, 1991 (JP) 1-022812

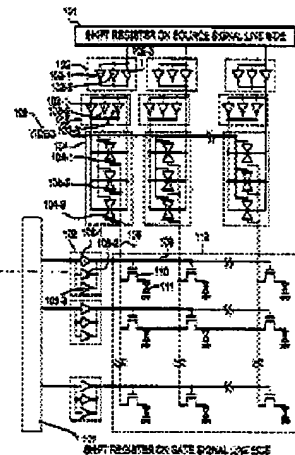
Publication Classification

Int. Cl. G09G 034

U.S. Cl. 345/92

ABSTRACT

An active matrix semiconductor device is provided which is free of unevenness in image. The analog switch and buffer in a drive circuit are structured by a plurality of parallel-connected analog switches and buffers each formed by a TFT with a small channel width. The carrier moving direction of these TFTs are oblique relative to a scanning direction of a linear laser used for laser crystallization. By doing so, the analog switch and the buffer are decreased in characteristic variation with deterioration suppressed. Thus an active matrix semiconductor device is realized which is free of unevenness in image.



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US 2001 0612 485 A1 DOC 73

[0031] It is known that if the TFT active layers are arranged oblique with respect to the linear laser beam scan direction as stated above, the individual TFTs have a characteristic decreased in

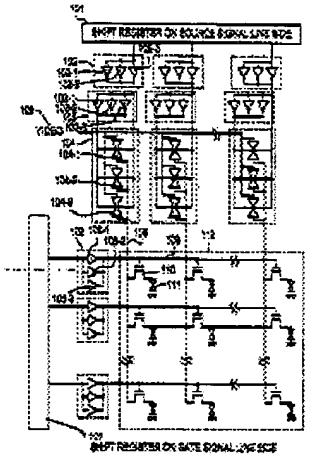
[0049] In the present embodiment, an active matrix liquid crystal display device is explained which has an analog switch directly connected to a source signal line, a last staged buffer for controlling the analog switch, and a buffer directly connected to a gate signal line, wherein each of them is divided into three connected in parallel.

[0050] Reference is now made to FIG. 1. 101 is a shift register provided on a side of source signal lines, 102 is a last staged buffer, 103 is a buffer for creating an inverted signal to a signal from the buffer 102, 104 is an analog switch, 105 is a video signal line, 106 is a source signal line, 107 is a shift register on a side of gate signal lines, 108 is a last staged buffer, 109 is a gate signal line (scan line), 110 is a pixel TFT, and 111 is a liquid crystal. Note that there are only shown, in FIG. 1, the analog switch 104 connected to the source signal line, last staged buffers 102 and 103, and the last staged buffer 108 directly connected to the gate signal line, with other circuits omitted for the sake of explanatory convenience. However, other circuits may be provided as required. The active matrix liquid crystal display device in this embodiment has pixels in number of 640 in horizontal.times.480 in vertical.times.RGB.

(10) United States
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(11) International Publication No.: (41) Pub. Date: Sep. 27, 2001

(54) SEMICONDUCTOR DISPLAY DEVICE (52) Foreign Application Priority Data
(51) Int. Cl. H01K 1/00 (2006.01) (2001.01) 15C02322
(57) Invention: Storage Transistor Arranged (19)
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(21) App. No.: 08/999,343
(22) Filed: May 8, 2001
Related U.S. Application Data
(56) References of application: US 2001/0024185 A1, filed on Nov. 10, 2000, and Pub. No. 8,208,567.

ABSTRACT
An active matrix semiconductor device is provided which is free of a source signal line. The active matrix and buffer is a drive circuit on a substrate by a plurality of parallel arranged analog switches and buffer units. Each unit is a TFT with a small channel width. The source moving direction of these TFTs on a substrate is a scanning direction of a scan line and is lower or perpendicular. By using on the active matrix and the buffer are arranged in characteristic directions with perpendicularity. Thus an active matrix semiconductor device is realized which is free of a source signal line.



L Number	Hits	Search Text	DB	Time stamp
15	15	"5335023"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:39
16	7	"5335023" and buffer	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:39
17	2	"5335023" and buffer same parallel	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:40
18	2	"5335023" and buffer same parallel and active near5 matrix	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:40
-	1979	analog same buffer same parallel	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 13:47
-	25849	analog same buffer same parallel samd (active adj matrix)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 13:47
-	12	analog same buffer same parallel same (active adj matrix)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/08/22 18:38